

CLAIMS

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What is claimed is:

1. A tool for use with a rocket slidably received in a tube of a launcher,

10 the tube having opposite and generally open ends, and having a fixed stop projection extending into the tube at one end of the tube;

the rocket

having an end annular surface circumscribing
15 a nozzle, and

being engageable with the stop by sliding the rocket toward said one end and into an initial position where said annular surface engages the stop;

20 the launcher including

 a member pivoted to the tube oppositely of the projection for movement between a first position aligned with the tube and a second position across the tube, and

25 at least one element which disengages the rocket when said member is pivoted to the first position, and which engages the rocket when said member is pivoted to the second position and the rocket is disposed in a loaded

30 position where the rocket is spaced from the stop in a direction away from said one end; and

the tool comprising

 a head

configured for reception in the tube,
conforming slidably and peripherally to the
tube,
bearing a face conforming to said annular
5 surface,
defining a recess configured to receive said
member when said face engages said
annular surface, said member is in the
second position, and the rocket is in
10 the loaded position, and
bearing a clearance surface spaced
transversely of the tube from the stop
projection when the head is received in
the tube; and
15 a handle,
whereby, when said member is in the second position, the
head is insertable into the tube without engaging said
member or the stop projection for urging the rocket into
said loaded position from said initial position by
20 engagement of said face with said annular surface without
the tool slipping from said annular surface and damaging the
rocket.

2. . The tool of claim 1 for use with a tube having a
25 cylindrical interior:

wherein said member, when in said second position,
extends diametrically of the tube and partially
across the tube a first predetermined
distance toward said stop projection, and
30 is disposed a predetermined second distance
axially of the tube from said annular surface
when the rocket is in said loaded position;
and
wherein the tool further comprises

the head having a peripheral surface conforming cylindrically to the tube interior,

said recess

5 extending axially of the peripheral surface into the head a distance greater than said first predetermined distance, and extending radially of the peripheral surface into the head a distance greater than
10 said second predetermined distance, and said clearance surface being planar and extending axially parallel to the peripheral surface.

3. The tool of claim 2 wherein said face conforming to
15 said annular surface is a circular segment bounded by said clearance surface, and wherein the tool further comprises said recess extending axially into the head from said face, and extending diametrically into the head oppositely of said clearance surface.

20 4. The tool of claim 1 wherein the rocket is electrically ignited, and wherein the tool further comprises the head being constructed of a material selected to dissipate static electricity.

25 5. A tool head comprising:
 an arcuate peripheral surface conforming to a segment of a cylinder having a predetermined axis;
 a planar peripheral surface subtending the arcuate
30 peripheral surface, said planar peripheral surface extending parallel to said axis and being disposed oppositely of said axis from the arcuate center of the arcuate peripheral surface;
 an axial end face terminating the arcuate peripheral

- surface and the planar peripheral surface, the axial end face including at least one planar face surface extending normal to said axis; and
5 a rectangular recess defined by the head and extending into the head in a direction along said axis from the axial end face, and in a direction perpendicular to said axis from the arcuate peripheral surface.
- 10 6. The tool head of claim 5 further comprising means disposed at an axial end of the tool head oppositely of said end face for attaching a handle to the tool head.
- 15 7. The tool head of claim 5 wherein the axial end face comprises:
an arcuate outer planar face surface extending radially inward from the arcuate peripheral surface;
and
a central planar face surface disposed radially within
20 the arcuate outer planar face surface and recessed inwardly of the tool head in a direction along said axis from the arcuate outer planar face surface.
- 25 8. The tool head of claim 7 further comprising means for releasably attaching a handle to the tool head, said means being disposed at an axial end of the tool head axially opposite of said end face.
- 30 9. The tool head of claim 5 further comprising the tool head being of unitary construction.
10. The tool head of claim 5 wherein the tool further comprises the head being unitarily constructed of a material

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selected to dissipate static electricity.

11. A method of loading and unloading a rocket,

5 the rocket

 having an nozzle with damageable elements,

 having an annular surface around the nozzle, and

 being being loaded into and unloaded from a firs t
 end of a launching tube;

10 the launching tube having a second end provided with

 a stop extending into the tube,

 a blast paddle pivoted for movement between a
 longitudinal position extended from said
 second end and a transverse position

15 partially across said second end, and

 a detent engaging the rocket when the blast paddle
 is in the transverse position and the rocket
 is in a loaded position spaced from the stop
 toward said one end,

20 the method comprising:

 disposing the rocket in the launching tube;

 disposing the blast paddle in the extended position;

 providing a rocket tool including

 a head having

25 a cylindrically segmental surface conforming
 interiorly to the tube,

 an end face conforming to said annular
 surface,

 an end recess conforming to the nozzle,

30 a recess conforming to the blast paddle when
 the blast paddle is in the transverse
 position, and

 a side surface configured to avoid the stop
 when the cylindrically segmental surface

- is within the launching tube, and
a handle extending from the head oppositely of
said end face;
- inserting the head into said second end with the
5 cylindrically segmental surface guided by the tube
so that said side surface passes the stop and so
that said end face engages said annular surface
without slipping from said annular surface and
affecting said damageable elements;
- 10 urging the tool and rocket toward said first end until
the rocket is in a desired position; and
withdrawing the head from the tube through said second
end so that the rocket remains in said desired
position with said damageable elements undamaged.
- 15
12. The method of claim 11 wherein the rocket is
electrically ignited and the method further comprises
constructing said head of a material selected to dissipate
static electricity.
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13. A method of loading a rocket in accordance with claim
11, the method of loading comprising:
- inserting the rocket into the launching tube from the
first end with the blast paddle in the extended
25 position until said annular surface engages the
stop;
- pivoting the blast paddle toward the transverse
position;
- inserting the head into said second end with the
30 cylindrically segmental surface guided by the tube
and with said recess receiving the blast paddle so
that the head passes the blast paddle in the
transverse position, said side surface passes the
stop, and said end face engages said annular

surface;
urging the tool and rocket toward said first end until
the rocket is in the loaded position with the
blast paddle in the transverse position and the
detent engaging the rocket; and
5 withdrawing the head from the tube through said second
end so that the rocket remains in the loaded
position engaged by the detent and with said
damageable elements undamaged.

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14. A method of unloading a rocket in accordance with claim
11 wherein the rocket is initially in the loaded position
with the blast paddle in the transverse position and the
detent engaging the rocket, the method of unloading
15 comprising:

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pivoting the blast paddle toward the extended position;
inserting the head into said second end with the
cylindrically segmental surface guided by the tube
so that the head passes the blast paddle in the
extended position, said side surface passes the
stop, and said end face engages said annular
surface;

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urging the tool and rocket toward said first end until
the rocket is in a position extending from said
first end;

20 withdrawing the head from the tube through said second
end so that the rocket remains in said position
extending from said first end and with said
damageable elements undamaged.

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